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CASTOR-OIL SOAP IN SOAP LINIMENT.

By L. E. Sayre.

I think none of my pharmaceutical brethren will deny but that the process for the preparation of our linimentum saponis can be improved upon. It is almost useless to point out the imperfection, for all who are familiar with it have experienced the common difficulty attending its preservation during the winter season.

Castile soap contains too large a percentage of insoluble constituents (chiefly palmate and stearate—the old margarate of soda) to be a good article; and yet it is the only commercial soap at all adapted to the purpose, the others being mostly made from solid fats.

I therefore suggest, to obviate the annoyance we are called upon to endure by the Pharmacopœia of 1860 (until we see what the revision of 1870 may bring forth), the substitution of castor-oil soap, which is easily prepared by boiling castor-oil with solution of caustic soda until a thick mass is formed which can be drawn into threads, then a strong solution of salt is added, when the soap separates as a coherent cake, which may be laded out into paper-box lids, &c., to dry.

My attention was directed toward this soap, some time ago, by an article published in the "American Journal of Pharmacy," 1871, p. 165, copied from the "London Pharmaceutical Journal," in which Mr. F. M. Rimington very highly recommends its introduction into the list of pharmaceutical preparations as a pure medicinal soap, and using it as the medium or adjunct for administering other active remedies. Its physical properties, he says, are in its favor. It has a

clean, yellowish-white color, free from smell, and soon becomes hard and pulverulent. To this I may add, it is quite soluble in cold alcohol, its spirituous solution remaining unchanged even at a very low temperature.

To test its merits, a preparation of soap liniment was made by substituting the Castile by it, and when subjected to low temperature (32° F.), it remained perfectly transparent, while the officinal preparation became quite thick.

Evidently a soap richest in oleic acid and containing the least percentage of stearic and palmitic acids is the best for making liquid saponaceous preparations. Castor-oil, it seems to me, furnishes us one coming nearest to this qualification of any we possess.

NOTE.—In his thesis, "Saponification of Castor-oil," Mr. Charles H. Clark advocated the substitution of a soda soap of this oil for Castile soap in soap liniment. Samples of the soap, and of soap liniment and soap plaster made with it, have been in the possession of the Philadelphia College of Pharmacy for the last ten months.—EDITOR AMER. JOURN. PHARM.

AROMATIC SYRUP OF PHOSPH. IRON, QUINIA AND IGNATIA.

BY C. G. POLK, M. D.

℞.	Ferri Sulphatis Purificati,	ʒxv,
	Sodæ Phosphatis Purificati,	℥iii,
	Quiniæ Sulph.,	ʒvi,
	Acidi Sulph. Dil.,	q. s.,
	Aquæ Ammoniæ,	q. s.,
	Tinct. Ignat. Amaræ Sat.,	℥iii,
	Sacchari Albi,	℥xx,
	Acidi Phosphor. Glacial.,	℥ii,
	Aquæ Distil.,	℥xv,
	Alcohol. Deod.,	℥iv,
	Tinct. Aurant. Essent,	℥i,
	Ol. Cardamomi Sem.,	
	Ol. Carui,	*aa* gtt. xx.

Dissolve the sulphate of iron in three ounces of boiling water, and the phosph. soda in five ounces of boiling water. Mix the solutions in a porcelain bottle with a tight-fitting stopper, and instantly insert the stopper so as to exclude both light and air. Set aside, that double decomposition may ensue and the phosph. of iron be precipitated.

It is nearly white. Throw this on a fine linen filter, and place in a porcelain funnel, and pour on water, of the temperature of 180° F., until the washings cease to be affected by chloride of barium. Then rapidly fold up in the linen filter and subject to pressure in a press until quite dry, and dissolve in the solution of phosphoric acid made by dissolving the monobasic phosphoric acid in the distilled water. Dissolve the sulph. of quinia in six ounces of water with dil. sulph. acid, and precipitate by slowly adding ammonia water until the alkaloid is thrown down. Then carefully wash and dissolve in the solution with the iron. Mix the alcohol and saturated tincture of ignatia together. Rub the oil of cardamom, oil of caraway and essential tinct. of orange together with the sugar; and, lastly, mix all the ingredients and dissolve without heat.

The saturated tinct. of ignatia is made by percolating 16 ounces of alcohol through 24 ounces of finely powdered ignatia bean. This syrup varies materially from the syr. phosph. iron, quinia and strychnia, and, while less pharmaceutically perfect in its transparency, keeps much better.

Philadelphia, Nov. 18, 1872.

THE NEED OF PRACTICAL INFORMATION IN OUR PHARMACEUTICAL PUBLICATIONS.

By Wm. L. Turner.

I do not wish to be understood as denying the value and importance of strictly scientific information, or as under-rating the fact, that a thorough knowledge of a subject is the best possible guarantee of the valuable results of practical operations; but I believe it is the opinion of a very large proportion of the patrons of our pharmaceutical publications, that they are getting so entirely scientific in character, that practical details and observations are, if not entirely lost sight of, treated in such a manner as to tend to degrade them far below their actual importance. Indeed the tendency of late in acquiring as well as imparting a knowledge of pharmacy is entirely too theoretical. To such an extent is this true, that it is by no means a rare thing to find persons engaged in the vocation, eminently well qualified theoretically, entirely at a loss when called upon to carry out some of the simplest details of a practical operation. In very many cases, either a lack of interest in, or a contempt for, those practical details by which alone even the technical and strictly scientific results of

pharmacy can be successfully accomplished, degenerates into careless manipulations and frequently slovenly habits.

My purpose, however, in this article is not to discuss the methods of teaching pharmacy so much as to call attention to the tendency which perhaps will in no small degree account for the sparcity of practical information given in our publications.

If we peruse a journal devoted to mechanics, we do not find it filled entirely with new inventions and novel appliances. On the contrary, while due attention is paid to these subjects, the greater part is devoted to the development of new and improved processes, by which familiar results are more easily arrived at, by which complex combinations are simplified, and the results of personal experiences of modes and methods for economizing time, labor and material. Their principal value and advantage to the mechanic is in the fact that he is made familiar with the methods adopted by others, so that he is enabled to add to his stock of knowledge the information derived from their experience, and is by this means stimulated to additional exertion, so that he in turn adds to the common stock rather than follow in the beaten track, which he would otherwise in all probability regard as containing the sum of all knowledge. But it may be said that pharmacy differs from the mechanic arts in that the one is eminently practical while the other is not; but I answer that, all other things being equal, he is the best mechanic who is the most familiar with the scientific principles involved in his branch, and he is the best pharmacist, all other things being equal, who is the most skilful in the practical operations involved in his profession. A chemist is not of necessity a pharmacist any more than a philosopher is a mechanic.

But does pharmacy differ so much from the mechanic arts as is generally supposed? I think a careful view of the matter will clearly demonstrate that there is no profession or vocation wherein mechanical manipulations and a knowledge of the principles involved are so thoroughly blended or so inseparable as that of the pharmacist. Are not the divisions into pills and powders, triturations, percolations, contusions, suspensions, solutions, &c., all merely mechanical operations in which practical experience plays the principal part as teacher? Can any amount of scientific information impart a knowledge of dividing a given quantity into any number of equal parts, or determine what degree of fineness of a certain article will best secure its

successful percolation? or who does not know that even long experience will fail to impart a knowledge of how to spread a good plaster, unless in possession of that rare qualification sometimes called a "mechanical turn?"

Much has been done toward simplifying the various processes conducted upon a large scale, and I apprehend that a large proportion of the manipulations which have been transferred from the pharmacy to the manufactory are in great measure due to this fact, and such is the tendency of late in this direction that an entirely new branch of business has grown up, that of the manufacture of pharmaceutical preparations; and, strange to say, while all who have embarked in this branch profess, on flaming handbills and in elaborate letter-press circulars, that their preparations are, in all cases, of officinal or, as they sometimes modestly put it, of standard strength, they find it necessary to caution all persons "to avoid fraud," or "to be sure of obtaining reliable articles, please specify our own make." A caution so generally indulged in leads one naturally to suppose that they either know from experience the necessity of it, or seek to inspire greater confidence in themselves by implying the unworthiness of it in others, in either case a sad comment upon their professional honesty.

There is, no doubt, a tendency to multiply intricate and complex combinations, and a demand for such preparations, which in a degree renders it necessary that some means should be afforded to relieve those engaged in what might be called legitimate pharmacy. There is no reason, however, why pharmacy should be diverted from its proper channels, or degenerate into a mere vocation for the vendition of crude drugs and unreliable preparations.

I do not pretend to say or believe that this tendency is the natural or necessary result of either teachers of pharmacy or pharmaceutical publications, nor do I wish to be understood as denying that there may be and are a great many questions deeply interesting to many of the readers of our publications, which have neither directly or indirectly any bearing upon pharmacy. It is far from my intention to find fault with what is, but rather with what is not, written.

No doubt there are a great many persons who would take a deep interest in the question of whether the poisonous properties of Rhus toxicodendron were due to an acid or an alkali, or manifest great interest in an elaborate recital of experiments on the action of sunlight

upon honey, to determine the question of why bees work in the dark? but these and kindred subjects possess about as much interest to a vast majority of the readers of our publications as the precession of the equinoxes would to those who assume to manage our primary elections.

What we want, or rather what is needed, is the diffusion of more practical information. The late Prof. Parrish, in his admirable work on Practical Pharmacy, has done much in this direction, by presenting in detail the results of his experience and observation, and in rendering practical many of the formulas of the Pharmacopœia, many of which, if not vague and incoherent, are calculated to produce variable results, depending greatly upon their manipulation. But, however much may have been done by him and others, it cannot be said either that the subject has been exhausted, or that practical operations have become less important.

I cannot but think that a new impetus would be given to the circulation of, and an extended field of usefulness be opened to, our publications, if this matter of practical information could be made to stand out more prominently upon their pages.

I leave the question, however, with those to whom it properly belongs, believing that I have expressed an opinon entertained in common by a large proportion of those who patronize pharmaceutical publications.

Remarks by the Editor.—In accepting the above article for publication, we desire to say that we have neither inclination nor intention *to find fault with what is, but rather with what is not written.* It may seem, according to the author's views, a waste of time and energy, as far as pharmacy and medicine are concerned, to determine the active principle of Rhus toxicodendron, or study the influence of sunlight upon honey. It would follow, then, that the discovery of the active principles of opium, nux vomica, aconite, &c., had been of no material influence upon pharmacy, and that it was quite unimportant for the pharmacist to be familiar with the influence exerted by light upon volatile oils, chloroform, santonin, some silver salts, &c.,—propositions and deductions which we cannot endorse, and which we feel confident the vast majority of our readers will not accept. But we believe with the author that many practical details and experiences, gained in the daily practice of our vocation, deserve to be made known; and we further believe, that since the knowledge of the pharmacist of the

present day is the result of the accumulated experience of our predecessors and some cotemporaries, that it is the duty of every one to assist in still further developing pharmacy, by making known his observations, and we invite the author, as well as all others interested, to communicate them to this Journal, for the benefit of the profession generally.

PATENT MEDICINES AND PRIVATE FORMULAS.

By James W. Long.

The present epidemic of so-called patent medicines is destined, unless checked in some manner, to become a standing curse, both to the profession of medicine and the public. P. T. Barnum never made a truer remark in his life than when he said, "The American people are fond of being humbugged;" for the avidity with which they swallow these nostrums proves this to be true.

The standing cry of the empiricists is, "Don't believe the doctors; they are afraid we will ruin their practice by depriving it of its secrecy, and making things plain to the public."

The druggist, who stands between the two, can readily see how false this is. He is necessarily compelled to keep these things, but if he is conscientious and has a proper professional pride, he is not bound to recommend them, and we would respectfully suggest that with them rests the remedy.

The writer of this article has frequently been thrown in contact with these patent medicine venders. They invariably have one story, that is, that their medicine is superior to all in the market, and that they have at great expense procured a *private formula*. We always make it a rule to first examine their packages, and if we meet with the almost inevitable "Entered according to act of Congress," etc., we immediately become suspicious of them.

A very good rule is to ask them pointedly, what ingredients their medicine is composed of; if their dose is a teaspoonful, how much of this and how much of that do you put in a teaspoonful. The general answer is that they do not feel at liberty to tell, but should they do so, in ninety-nine cases out of a hundred, a computation of the wholesale price of these ingredients, the menstruum, bottle, stamp, wrapper, and a moderate per centage for work, will hardly admit of its being sold at any profit to them at their jobbing rates.

The fact that some of these preparations possess superior excellence, cannot be doubted, but a majority of these make no secret of their formula. (? Editor.)

That the profession are prejudiced against them is true; but only for two reasons. One is, they do not know what they contain, and consequently would be guilty of criminality in either recommending them or prescribing them; the other is, they cannot be expected to acknowledge that any one man is sufficiently endowed with prescience or omniscience, so as to know more than the careful trained, hard read and faithful school of medicine.

The rage for private formulas is increasing, we might say, daily, and has reached even the public. It was only the other day a man came to our counter, and informed us he had a private receipt for curing gonorrhœa, for which he had paid twenty-five dollars, and which he wished to have filled. For the benefit of the public we give it:

℞

Balsam Copaiva, . .	10 cents worth.
Sweet Spts. Nitre, . . .	10 cents worth.
Tinct. Cubebs, . .	15 cents worth.
Tinct. Cantharides, . . .	5 cents worth.

M. S., one teaspoonful three times a day before meals.

We kindly explained to him the difference of prices current, the utter absence of quantities, etc., and he went away minus his ten and and ten and fifteen and five cents worth of sovereign cure for gonorrhœa.

We will close this by a few formulas we have filled, which we are confident have merit in them. One is much used in the lumber camps of Michigan, among the lumbermen, for private diseases.

℞

Balsam Copaiva, ...	fl. ℥ ss.
Sweet Spts. Nitre, . . .	fl. ℥ ss.
Gum Acacia, ...	℥ ss.
Pulv. Cubebs, . . .	℥ ss.
Venice Turpentine, . . .	fl. ℥ ss.
Pulv. Podophyllum, . . .	℥ ss.
Gin, q. s. ft.	fl. ℥ xii.

M. Sig., teaspoonful three times a day.

The following is an excellent wash for cleaning dandruff from the hair, and cleaning the scalp.

℞

Sapon. Castil., finely shaved, one teaspoonful.
Aquæ Ammoniæ, ... f. ʒ i.
Alcoholis, ... fl. ʒ v.
Aquæ Coloniensis et Spiritus Myrciæ in partes æqualles, q. s. ft., ... fl. ʒ viii.

This should be poured on the head, followed by warm water (soft water), the result will be on washing a copious lather and a smarting sensation to the person operated on. Rub this well into the hair. Finally rinse with warm and afterwards with cold water. If the head is very much clogged with dirt, the hair will come out plentifully, but the scalp will become white and perfectly clean. This is for a cleaner of the hair. Should the hair continue to come out on combing (which, however, will not generally happen), use the hair restorative given by Prof. Parrish, on p. 312, third edition of Parrish's Pharmacy. As there is more than one on that page, we take the liberty of reproducing it here:

Take of
Castor Oil, ... f. ʒ vi.
Alcohol, ... f. ʒ xxvi.
Dissolve, then add
Tinc. Cantharides (made with strong alcohol), f. ʒ i.
Ess. Jessamine (or other perfume), . fl. ʒ iss.
M

Both of these preparations have been tried, and the result has been a clean scalp, a thorough removal of decayed hair, followed by an increased growth of healthy, soft hair.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Ferrous Mannate.—Under this name a ferruginous preparation is proposed by Mr. Ghysen, which is of a green color, inalterable in the air, insoluble in water, but readily oxidized when diffused in this liquid, which then acquires a yellow color. It is administered in doses of a few centigrammes to one gramme, in the form of powder or pills. The following process is recommended:

75 grm. crystallized sulphate of iron are powdered, intimately mixed with 100 grm. of flake manna, and triturated with 80 grm. of

ammonia water of 22° B., until a homogeneous mixture is obtained. 130 grm. 94 per cent. alcohol are now added in small quantities; the mixture soon separates into a soft mass and a supernatant ammoniacal liquid which is rejected; the residue is again washed with 130 grm. alcohol, then rapidly dried and powdered, when it weighs 125 grm.—*Bull. de la Soc. Roy. de Ph. de Brux.*, 1872, *No.* 10.

Pills of ferrous oxide.—W. Kirchmann has, for the last ten years, prepared the following pills, which have been used with favorable results by several physicians:

℞.

Ferri sulphatis, ...	120 grains.
Magnesiæ ustæ, ...	20 "
Glycerini, ...	15 drops.

M. ft. pilul. No. 60.

The pills are well adapted for sugar coating; placed in water, they dissolve at once, leaving ferrous oxide behind. Ferrous and magnesium sulphate containing the same amount of water of crystallization, the above formula yields a good mass without any further addition. The glycerin prevents the magnesia salt from drying, the fine crystalline mass of which envelops the ferrous oxide so completely as to prevent all oxidation, even when kept for years.—*Archiv d. Ph.*, 1872, *Sept.*, 231.

Colocynth seeds, as an article of food, are mentioned in Pereira's Elements of Materia Medica,* upon the authority of Captain Lyon. Dr. Nachtigal has lately given an account† of his sojourn among the Tibbus, living in the mountainous country of Tu (17° to 18° longitude east of Greenwich, 18° to 20° N. latitude), and described their mode of preparing colocynth seeds for food. They free the seeds from the bitter pulp by treading upon them enclosed in strong bags; the seeds are then rubbed upon a smooth surface of rock, together with the ashes of camel's dung, with a rounded stone, and the testa is then separated from the kernel by winnowing; the kernels are heated to boiling, then washed with cold water, dried and powdered and eaten with dried dates. Professor Flückiger, in examining the seeds found in the testa mucilage, which is precipitated by acetate of lead, incompletely by alcohol and not affected by alcohol; also a bitter

* American edition, 1854, p. 739.

† Zeitschr. d. Gesellsch. f. Erdkunde zu Berlin, v (1870), 216.

principle, on account of which he considers the rejection of the seeds in making the officinal extract, as improper. The fixed oil obtained from the kernel (16·94 per cent. of the seed), is thick, does not congeal in winter, has a bland taste, and hardens slowly when exposed to the atmosphere in thin layers. For the kernels alone, Dr. Flückiger estimates the fixed oil to amount to about 48 per cent., and the soluble and insoluble albumen to about 18 per cent., so that their value as an article of food is readily explained.—*Ibid.*, 235–247.

Hydrocyanates of the alkaloids.—Professor Flückiger has treated solutions of the salts of berberina, quinia, strychnia and morphia with cyanide of potassium, and found in all cases the precipitate to consist only of the alkaloid, entirely free from hydrocyanic acid. The freshly precipitated alkaloids were diffused in water and hydrocyanic acid passed through the mixture without effecting solution; if the alkaloids are dissolved in alcohol and the solution saturated with hydrocyanic acid, the pure alkaloids are obtained on evaporation, and the author concludes, therefore, that hydrocyanates of these alkaloids do not exist.—*N. Jahrb. f. Pharm.*, 1872, *Sept.*, 138–140.

Detection of water and alcohol in ether.—Prof. R. Bœttger agitates equal volumes of bisulphide of carbon and ether, which yield a clear mixture if the ether is anhydrous; a minute quantity of water renders it turbid and milky. A small piece of hydrate of potassium immersed in ether is covered, after 24 hours, with a yellowish film, and the liquid acquires a yellowish color if alcohol be present.—*Ibid.*, 154, from *Jahresb. d. Frankf. phys. Ver.*

Preservation of Tincture of Opium.—Laudanum, which has been filtered clear, gradually separates a deposit if kept in a cool place, which, at a slightly elevated temperature, gradually redissolves. Tinctures of opium ought therefore be kept at the ordinary temperature, or if they became turbid in a cool place ought not to be filtered until they have been kept for some time in a warm room.—*Ibid.*, from *Apoth. Ztg.*

Artificial Conia.—Hugo Schiff has found that artificial conia prepared by him,* is merely isomeric but not identical with conia, and proposes the name of paraconia for it.—*Pharm. Zeitung*, 1872, *No.* 83.

Persian saffron.—Dr. Hager has received, under this name, samples in the form of agglutinated cakes possessing a fatty odor. They

* American Journal of Pharmacy, 1871, p. 161.

contained few stigmas of crocus, but consisted mainly of narrow yellow petals saturated with a thick oil, which was readily dissolved by ether. This so-called saffron is easily recognized by its imparting a yellow color to petroleum ether, which is not colored by true saffron. —*Pharm. Centr. Halle*, 1872, *No.* 40.

Detection of morphia in quinia.—Several fatal cases of poisoning by quinia containing morphia, having of late occurred in Europe, the Schweiz. Wochenschr. f. Pharmacie proposes the following test, which is with slight modifications also recommended by Pharm. Centr. Halle: 0·1 grm. ferricyanide of potassium is dissolved in 15 grm. water; 3 drops of this solution are mixed with 16 drops of a mixture obtained from 12 drops solution of ferric chloride with 50 grm. of water. The reagent is mixed with a drop of the quinia solution, which, if pure, scarcely affects it; but if containing only one ten-thousandth morphia, a distinctly blue coloration is at once produced, and a precipitate of Prussian blue if a few drops of morphia solution are added. The absence of all coloration is proof of the absence of morphia. A blue color or precipitate, however, may be produced by all deoxidizing substances, and a further examination is necessary.

Acetate of iron in scales may be obtained if a solution of the salt is evaporated upon glass plates in a dark place at a temperature of 15° to 17° C. (59° to 63° F.) It is of a deep chestnut brown color, dissolves readily and clear in water, and must be kept in a dark place. —*Pharm. Centr. Halle*, 1872, *No.* 42.

Adulterated quinia.—J. Biel has met with sulphate of quinia, pretending to be of German manufacture, which was adulterated with 10 per cent. of anhydrous sulphate of soda.—*Chem. Centr. Bl.*, 1872, *No.* 40, from *Pharm. Zeitschr. f. Russl.* xi, 367.

Preparations of Eucalyptus globulus.—L'Union Pharmaceutique, 1872, September, publishes the following formulas:

Syrup of eucalyptus.—Distilled water of eucalyptus, 500 p.
Sugar, ... 950 p.
Dissolve without heat and filter.

Tincture of eucalyptus.—Eucalyptus leaves, dried and cut, 1 p.
Alcohol of 80 per cent. . 5 p.
Digest for six days and filter.

Wine of eucalyptus.—Eucalyptus leaves, dried and cut, 80 p.
Alcohol of 60 per cent., . . 60 p.
White wine, ... 1000 p.

Macerate the leaves in the alcohol for 24 hours, add the wine, macerate for ten days, express and filter.

Extract of eucalyptus.—Eucalyptus leaves dried and cut, 1000 p.
Water, ... 3000 p.

Obtain by distillation the volatile oil. Of the residue in the still prepare an aqueous extract, which treat with 1000 p. of alcohol of 60 per cent., filter, concentrate the alcoholic liquid to the consistence of an extract, to which, while cooling, add the volatile oil and mix intimately.

Detection and estimation of Ground-nut oil in olive oil.—Renard.—10 grams. of the oil are saponified, the soap is decomposed by HCl, and the fatty acids resulting are dissolved in 50 c. c. of 90 per cent. alcohol, and precipitated with acetate of lead. The precipitate is exhausted with ether to remove the lead oleate, the solid fatty acids obtained by boiling the residue with HCl and cooling, are dissolved in 50 c. c. alcohol of 90 per cent., and cooled. If ground-nut oil be present, abundant crystals of arachidic acid will form in the liquid. These may be removed and washed, first with alcohol at 90 per cent., and then with 70 per cent., and then dissolved in boiling absolute alcohol, received in a tared dish, evaporated to dryness and weighed. Since pure ground-nut oil contains 4·5 to 4·98 per cent. of arachidic acid, it is easy to calculate the amount of this oil present. The method is capable of detecting an adulteration of even four per cent.—*Amer. Chem., Oct.*, from *Compt. rend., No.* 23.

A NEW FILTER.

By R. Rother.

For most pharmaceutical purposes the ordinary plaited filter meets all indications. But for analytical operations the plaited filter cannot be successfully applied. The numerous folds, while favoring the rapid transmission of liquids, expose too much surface for the convenient collection of precipitates, and at the same time greatly and seriously interfere with their washing. The plain filter is the only practical form for analytical uses, but as it exposes only half as much surface as the plaited filter, the passage of the liquid will naturally be

slower; but a very fatal objection to the plain filter is the superfluous fold which in two thicknesses lies under one-half the extended surface of the filter. The interposition of these two extra layers compels the liquid to pass through three thicknesses of paper on the half side of the extended filter, whilst the other half side presents only a single thickness. It is evident that the two hidden layers are a very appreciable impediment to the current, aside from the more important fact that the liquid will traverse this side less rapidly than the other, and thus occasion an imperfect washing of the precipitate, or at least prolong the operation beyond reasonable limits. The writer, recognizing the force of this objectionable feature, resorted to a very simple modification of the plain filter, which, while saving fifty per cent. of the paper, removed all the deleterious defects of the old form. This new filter practically presents but a single thickness of paper to penetrate, at the same time preserving an even surface, equal in all other advantages to the plain filter. The strength and general security of the new filter has been thoroughly tested, and has not failed in a single instance. The filtrations are more rapid than with the usual form, and the absence of the superfluous half sheet admits of a more rapid drying, which is an additional gain of the new filter. The most gelatinous, as well as the most compact and heavy precipitates were collected with it from strongly corrosive liquids with the greatest ease. Its particular advantages for analytical operations are unsurpassed.

To make the new filter, cut the circular disc of filtering paper in two through the line of its diameter, take either half disc and fold it across the line of the radius, then turn down the double edge of the cut side and fold it over several times—finally, run a hard, smooth surface along the seam thus produced, to compress it, and spread the finished filter into an appropriate funnel, first moistening it with water before the liquid to be filtered is poured in.

In this connection the writer would suggest a substance of great utility in a majority of analytical operations. It is the so-called "iron cuts." This material is in regular pieces an eighth of an inch long, with very oblique bases, and is apparently cut from a very fine species of flattened wire similar to that from which card teeth are made. It is originally sold as an improvement on iron filings for pharmaceutical purposes. The writer, however, has employed it with great success for its mechanical effects in analytical manipulations, for which purpose it is far superior to sand or iron filings. Its cleanliness and

compact nature especially recommend it. It completely replaces the sand bath in every particular. Among its numerous advantages, it does not adhere to apparatus, which is an exceeding annoyance with sand or iron filings. Funnels holding filters with precipitates to be dried can be partially immersed in this material, and the drying speedily effected. It is a valuable adjunct to the water bath for utilizing heat.

Thus, any convenient vessel can be partially filled with it, and then water poured on so as either to reach slightly above the surface, or fall below it. Heat is then applied, and upon this support evaporating dishes can be placed, containing liquids, or filters with precipitates. In this case a special advantage is secured by using an evaporating dish containing the material dry, for the purpose of drying precipitates and other substances, which must not be heated above 212° F. The funnel is then partially submerged in the cuts contained in the evaporating capsule, which is in its turn heated by the mixture of cuts and water in the other vessel. By this procedure immense effects are obtained.—*The Pharmacist, Oct.*, 1872.

JAPANESE WAX AND ITS EMPLOYMENT IN PHARMACY.

By Dr. C. Roucher, Pharmacien Principal de Première Classe.

The vegetable wax known under the name of Japanese or Chinese wax is produced by the *Rhus succedaneum*. It is harder than ordinary wax, but much more fusible, the point of fusion indicated by various authors varying from 40° C. to 42° C. It is white, with a slightly yellowish tint, has a feebly rancid smell, and is more friable than beeswax.

As this vegetable wax is now much used in pharmacy, the author has sought to determine the exact point of fusion, and for this purpose examined two specimens, which yielded exactly similar results. This he did by using very thin closed tubes, 15 millimetres wide, in the lower third of which the substance was spread in a uniform layer. The tubes were then plunged into water at various temperatures, and the points noted of opacity, semi-transparence, complete transparence and running against the sides of the glass.

The results obtained with the Chinese wax were as follows: At from 40° C. to 45° C. the wax remained opaque, provided that the temperature was raised one degree at a time; from 45° C. to 50° C.

it became more and more transparent, without becoming mobile; at 53° C. it was transparent and nearly melted; at 54° C. it was completely fused. If the wax be rapidly raised to a temperature sufficiently above its melting point, and, after cooling, be plunged into water at 42° C., it melts into a transparent liquid. So that this wax has two melting-points—42° C. and 54° C.—separated from each other by twelve degrees, the highest being attained when the temperature is slowly and progressively raised.

Japanese wax is not the only substance presenting such anomalies in fusion and solidification, since, according to M. Duffy, natural stearin under the influence of heat undergoes three distinct modifications, which are produced in a similar manner by heating it beyond the melting-point and then cooling it. The same phenomenon is noticed in monomargarin and the palmitins.

To ascertain whether the wax operated on was constituted by a mixture of two or more substances, the separation of which might influence the phenomenon of fusion, the author dissolved a portion of it in boiling 90° alcohol. Upon cooling, the greater part of the wax separated; this, dried for some days in the open air, still contained a considerable quantity of water, which could be driven off by heat. Deprived of its water, it presented exactly the same points of fusion, 42° C. and 54° C., and comported itself between these two extremes in the same manner as that which had not been treated with alcohol. Beeswax offers nothing similar; two specimens, one white and the other yellow, melting at the single temperatures respectively of 62·5° C. and 64° C.

The introduction of Japanese wax into pharmacy, and its substitution for beeswax, suggested the following experiments as to the relations of the points of fusion of cerates prepared with these two substances, both being used in the proportion of 10 parts of wax to 35 parts of olive-oil:

Japanese Wax and Olive-Oil.—At 30° C. it commenced to melt, but quickly stopped and became opaque and solid on the sides of the tube. From 32° C. to 45° C. the cerate, semi-transparent, ran slowly and sluggishly. At 46° C. it melted easily into a transparent mobile liquid. In this state, if heated to 50° C., and after allowing it to spread in a thin layer and cooled, it was plunged into water at 32° C., it melted into a transparent syrupy liquid, accumulating at the bot-

tom of the tube. Raised again to 50° C. and placed in water at 30° C., it became transparent, but only ran slowly. Upon repeating the operation with water at 28° C., it became transparent, but did not run, and gradually resumed its opacity. This showed that by the addition of the above proportion of olive-oil to Japanese wax, its highest melting-point was lowered eight degrees—from 54° C. to 46° C.—and its lowest ten degrees—42° C. to 32° C.—the cerate, like the wax contained in it, having two melting-points, which are separated by fourteen degrees.

White Beeswax and Olive-Oil.—At 39° C. it commences to lose a little of its opacity; from 42° C. to 52° C. it becomes more and more translucent; at 54° C. transparent; at 56° C. runs slowly; at 57° C. it runs easily. So that a mixture of olive-oil with beeswax in the proportions indicated, lowers the melting-point seven degrees. Just as there is a difference of ten degrees between one of the melting-points of Japanese wax and that of beeswax, there is a difference of ten degrees between those of the two cerates.

The observation of the melting-point alone would not be sufficient to distinguish between cerate made from vegetable wax and that from beeswax, as the melting-point might depend upon the proportion of olive-oil present. But the existence of only a single point of fusion in beeswax might be a useful indication as to the presence or absence of Japanese wax, or probably of margarin or stearin. A cerate made with beeswax may also be distinguished from one made with Japanese wax by the action of a strong alcoholic solution of caustic potash, which dissolves entirely, even in the cold, a cerate made from the vegetable wax, but only dissolves very incompletely one made from beeswax.

It will thus be seen that, from a pharmaceutical point of view, the effect of substituting Japanese for beeswax, in medicaments having wax for their base, is a notable lowering of their melting-point; and a cerate made of the proportions indicated above would melt at the temperature of the human body, the mean of its two melting-points being about 37° C. or 38° C. It will, therefore, be evident that such a substitution should not be made without the greatest care.—*Pharm. Journ., Lond., Aug.* 17, 1872, from *Journal de Pharmacie et de Chimie* [4], vol. xvi, p. 20.

BOTANICAL ORIGIN AND CHARACTERS OF THE OFFICINAL RHUBARBS.

By the courtesy of Dr. J. Léon Soubeiran we have been favored with the following extracts from a communication made by Professor Baillon, in the recent session of the French Society for the Advancement of Science, held at Bordeaux.

The fine officinal rhubarbs which are known by the names of Russian and Chinese rhubarbs, appear to be the product of a single botanical species, growing in Thibet, about the 40th degree of latitude, in deserts, which have usually been looked upon as vast plateaux of sand, but which are really inaccessible citadels, formed of superposed stages of perpendicular rocks, the craggy buttresses of which have been but seldom, and then with difficulty, scaled by Europeans. It was thence that about the year 1868 M. Dabry procured some stalks of the true officinal rhubarb. How he procured these plants is not known, but probably they were carried off by a Chinese workman from land devoted to the lamaseries, from which the common people are scared by terrible imprecations.

Boerhaave and Pallas, like the explorers of the Meikong in our own time, appear not to have known the true rhubarb except from the accounts of the dealers who transported it from Thibet, either to Kiachta, the principal mart for it in Russia, or to China. Linnæus, however, was pretty near the mark when he wrote that the Asiatic rhubarb grew "*ad murum Chinæ*," although the real locality is doubtless further east. But it has long been known that the plant is furnished with palminerved or digitinerved leaves, which are deeply incised on the margin. This has induced authors to think that the finest quality of the Asiatic drug is produced by a species in the same group as *Rheum hybridum*, probably by *R. palmatum*. Guibourt also arrived at this opinion after having cultivated and studied in Paris all the species of *Rheum* which he could obtain. But M. G. Planchon has shown that the roots of *R. palmatum*, as they are found in Guibourt's collection, do not present the histological characters of the Chinese or Russian rhubarbs of commerce.

Hitherto but little attention has been paid to what is said of the rhubarb plant by the authors of the Chinese "Pun-tsaou," namely, that the leaves are "green during the first month, and that when well developed they are as large as a fan, and resemble those of the *Ricinus communis*;" also, that the stem is very large, one to two feet

long, covered with a black bark, soft, humid, and containing a yellow sap-wood. These characters are very perceptible in a plant sent by M. Dabry to M. Soubeiran, in the putrified mass of which some shoots were found still intact by M. L. Neumann. These shoots carefully cultivated have produced some plants, one of which has flowered with M. Giraudeau, in the valley of Montmorency, and another is cultivated in the Garden of the Faculty of Medicine at Paris. It has there produced leaves of about a metre and a half in length, and of which the limb, a little broader than long, is orbicular, deeply five-lobed, and incised, cordate at the base, pale green, glabrous above, densely covered underneath by a fine white down, which does not alter the green tint. In the inflorescence, the bracts of about two metres in length, ramified, foliate, and bare at the summit, are surmounted by numerous cymes of whitish flowers, remarkable for the depth of their concave receptacles and the green color of their disks. The aerial portion of the axis of this plant, for which the name of *Rheum officinale* is proposed, is a thick, short, ramified stem, whilst the subterranean portions are cylindrical, of small size,—therefore of little practical use,—and easily destroyed, from which cause it is rarely, and in but small quantity, imported into Europe. This is the reverse of what is found in the European rhubarbs, of which the fuller developed root is the part usually employed, together with a small portion of the stem. But in the Thibet rhubarb the part principally employed is the aerial stem or branches. Hence the peculiar characters of this drug as it is generally met with in commerce. It is characterized by its color, smell and taste—found in the living plant from Thibet—and by the numerous starred spots which are observed in sections of certain portions. The pretended black bark which is removed in cleaning this rhubarb is nothing but a mass of leaf bases and of ochreas which cling to the surface of the stem. As the stems of *Rheum* which have been planted in France comport themselves as true sympods, on the surface of which there are not only leaves, but also axillary buds, it is not astonishing that these buds, separated from the mother-plant, readily develope adventitious roots, allowing of their easy reproduction. Thus the future is assured of a large number of stalks of this plant, handsome in an ornamental point of view, and susceptible of being successfully cultivated in France in the open air, where it has already supported a winter of 20°.

The radiated spots in rhubarb are really transverse sections, more or less oblique, of adventitious roots, which penetrate from the base of the root into the parenchymatous mass of the stem, where they appear as a pith of medullary rays, with triangular portions of parenchyma and wood interposed. This makes it practically possible always to distinguish the rhubarbs met with in commerce consisting of the cauline portions of the plant from those consisting of the root.—*Pharm. Journ. Lond., Oct.* 19, 1872.

REPORT ON CINCHONA BARK GROWN IN JAMAICA.

By the kindness of J. E. Howard, Esq., we are enabled to print a report made by him upon some samples of cinchona bark forwarded to him by Mr. Sargeaunt, the Crown Agent for the Colonies. The samples included five species grown in the Botanical Gardens, Jamaica, and one from a locality named Cold Spring. Those from the plantation had been planted out three and a half years, the specimens from Cold Spring was supposed to be about eight years old.

Report by J. E. Howard, Esq., F.L.S., etc., *to the Crown Agents for the Colonies on the above samples.*

Sir,—Referring to your letter of the 27th June,* I have to inform you that the samples of cinchona bark from Jamaica have been received and fully investigated, and I am glad to be able to report that the result is highly satisfactory as regards the prospects of cinchona cultivation in that island.

The total contents in alkaloid may be described as quite favorable for the time of growth, with specialities which seem to indicate that some species are more exactly suited than others. The *C. calisaya* is in this case decidedly the most promising, and it has already attained

* "The samples of cinchona bark have been forwarded, and I shall be glad to receive the report which Mr. J. E. Howard has kindly promised to give on their botanical qualities and commercial values. I enclose an extract from a letter from the Superintendent of the Botanical Gardens, Jamaica, which may be of assistance to Mr. Howard in his examination of these specimens.

"*Extract referred to under date, April* 22, 1872: 'I send herewith all the species (five) grown here, and also a specimen from Cold Spring. They are all labelled. Those from the plantation are now three years and a half old, that is, from the time they were planted out, when they were four to six inches high. The specimen from Cold Spring is, as nearly as I can make out, about eight years old.'"

a percentage of quinine which would fit it for the purposes of the manufacturer. This may be owing to a difference in the sort cultivated; if otherwise, it marks a more favorable climate for this species than the East Indies present.

The reverse may be remarked of the *C. officinalis*, which has probably not been planted at a sufficient altitude above the sea.

The *C. succirubra* resembles that grown in India, with the exception of the specimen from "Cold-spring." The latter is thin, and with the appearance of having grown slowly, but is of very good quality, containing quinine, cinchonine, and cinchonidine in almost equal proportions, together with great abundance of the peculiar cinchotannic acid. It would be exactly suited to pharmaceutical purposes.

The *C. micrantha* and the *C. pahudiana* are of equal value. The *C. micrantha* contains more quinine and less cinchonine than usual. The *C. pahudiana* contains about as much quinine, more cinchonidine and the same amount of cinchonine as the last.

They are both inferior to those previously named. The three best specimens might be worth from 1*s.* 6*d.* to 1*s.* 10*d.* per lb., for manufacturing purposes, or might command even a higher price for druggists' use. The others would also sell at prices higher or lower, according to the fancy of the purchasers.

I return samples for quantitative analysis, and remain yours, etc.,

[Signed] JOHN ELIOT HOWARD.

—*Pharm. Journ., Lond., Aug.* 3, 1872.

THE NEW TREATMENT OF ITCH.

The following translation from the German of Professor Rothmund, we quote from an English source:—

The remedies hitherto in use for the itch, such as Wilkinson's sulphur ointment, Hebra's tar soap, Vlemingx' solution, etc., are not to be compared for certainty, rapidity and pleasantness of cure with *styrax* and *Peruvian balsam*. *Styrax* was first recommended in itch in 1865, by Von Pastau, of Berlin. It has shown itself a most efficacious remedy, due to its containing cinnamein, cinnamonic acid and resin. It is used as a mixture:—Styrax, ℥ij, ol. olivar. ℥j, or thus, styrax, ℥ij, alcohol, ℥ss, ol. olivar., ℥ij. Styrax is a good and cheap remedy, its only disadvantage being its very disagreeable smell. For children it is used in the form of soap. Balsam of Peru is even

better than styrax for the cure of itch. It was first employed in 1853, by Bosck, and was strongly recommended by Bärensprung in 1864, on the strength of an extensive trial of it in the Charité Hospital, of Berlin. Its component parts are cinnamein, cinnamonic acid and resin. Balsam of Peru is preferable to all the other vaunted remedies, because the acarus scabiei is most rapidly killed by it, because it acts with rapidity, with certainty, and agreeably; because it does no injury to the skin; because it easily penetrates the skin; because baths are not absolutely necessary with it, and because it kills all the acari and their eggs, for when well rubbed into the skin it comes in contact with the eggs. As a remedy for children it is superior to all others. The children are first placed in a warm bath, then well dried, and forty drops of the balsam rubbed well in. This is to be repeated four or five times the next twenty-four hours, and the cure is complete. It may be used in every form of iteh in children with advantage. It has, to be sure, no effect upon the eczema scabiei; for this, soap baths, starch powder, or glycerin inunctions are required. In adults the best plan is to rub in the balsam of Peru all over the naked body, slowly, carefully and gently, giving special attention to certain parts of the body, especially the fingers. Although in the treatment of itch the rubbing in cannot act mechanically, yet, whatever substance may be used, the mode of preparing the inunction is of great importance. As the balsam is readily distributed, nine grammes of it suffice for one operation. It is not at all necessary to begin the treatment with a bath; but if a bath is first given, the rubbing-in should not follow immediately, as the balsam is more rapidly absorbed by a dry skin. Hence, in persons who easily perspire, the skin should be well dried before the remedy is used. When the operation is carefully performed, relapses occur very rarely, and there is never any increase in the eczema that may be present. It is seldom that prurigo occurs after the itch. Should it occur, this disagreeable symptom is more readily removed by the internal use of carbolic acid than by warm baths and soft soap or glycerin. The only objection to Peru balsam is its expense. Carbolic acid, on account of its efficacy, its facile employment and its cheapness, deserves to be mentioned next to Peru balsam. It must be mixed with glycerin or oleum lini, to prevent its caustic action. One scruple of acid. carbol. is to be mixed with two ounces of either of the two other excipients. This remedy has this advantage, that by its action on the peripheric cuta-

neous nerves, it completely removes and prevents the morbid itching, prurigo and pruritus. In case of prurigo and pruritus, independent of itch, the internal use of carbolic acid in the form of pills is an excellent remedy. As the carbolic acid gets pretty quickly into the circulation, it is necessary to give it in very moderate doses, especially where there are parts destitute of epidermis. But as thereby its action is delayed, it is better to employ the carbolic acid in the form of a salt. According to Rothmund, natrum carbolicum supplies all the requirements of a good, rapid and certain itch remedy. The following is the best way of using it:—

R.	Natr. carbol., - -	ʒxv.	
	Aqua destil., - -	flozclxxx.	M.

With this the affected portions of the skin are to be rubbed three times a day, and even in the most inveterate cases the treatment never lasts more than two and a half days; relapses are not to be feared, and if the rubbing-in is carefully performed, no erythema to speak of occurs. During the treatment the patients are in no way hindered from following their usual occupations. One advantage of the Peru balsam and carbolic acid treatment of itch is that it is not necessary to disinfect the clothes or bed linen. In order to make sure, Rothmund recommends an additional rubbing-in to be made some eight or ten days after the cure of the itch, in order to kill any acari or their eggs that may have lurked among the clothes or bed linen.—*Canadian Pharm. Journal, Oct.*, 1872.

THE PRECIPITATION OF SILVER BY COPPER.*

By Alfred Tribe, F.C.S.

When a piece of copper foil is metallically connected into a piece of silver, and placed into an aqueous solution of cupric nitrate (dilute to about 6 per cent.) containing air, the oxygen of the latter slowly combines with the copper of the nitrate, forming cuprous oxide, which deposits on the silver in a fine crystalline condition, whilst the nitric element combines with metallic copper, reproducing the nitrate. If the copper have its surface covered with crystalline silver, the decomposition of cupric nitrate by free oxygen is accelerated, so much so that, when this couple is moistened with the salt and exposed to air

* Read before the British Association, Brighton Meeting, Section B.

or oxygen, the tips of the silver crystals become at once coated with cuprous oxide; and when a limited quantity of air is used, nitrogen only remains in the free condition (Gladstone and Tribe, *Proc. Roy. Soc.*, vol. xx, p. 290).

In carrying out the above and other experiments, it was frequently necessary to completely precipitate silver from the nitrate by copper, and it was observed that the metal so obtained, after being washed with water, invariably contained copper, sometimes in considerable quantity. Since the above-mentioned couple is formed the instant silver in solution is brought into contact with copper, the idea suggested itself that the copper found in silver precipitated by that metal might be due to dissolved oxygen in the silver solutions; or to the absorption of that gas, by the liquid, from the air during or subsequent to the precipitation of the metal. The experiments made with the view of ascertaining the correctness of this supposition are tabulated below.

There was employed in each experiment an excess of copper, and in experiments C to I about the same volume of liquid. In A and B, pieces of copper of the same dimensions were placed in open basins and covered to about a quarter of an inch with ordinary silver nitrate, *i. e.*, impregnated with air. In C, D and E, bottles were filled with ordinary silver solution and stoppered during the precipitation. In F and G, carbonic anhydride was bubbled through the solutions prior to the immersion of the copper plate, and the precipitation conducted as in C, D and E. In H and I ordinary solutions were employed.

Experiment.	Per cent of $AgNO_3$ in Solution.	Duration in Hours.	Copper in Precipitated Metal.	Copper per 100 parts of Precipitated Metal.
A	1·4	24	0·0185	7·45
B	1·4	48	0·0377	15·23
C	3·5	24	0·0103	0·32
D	1·4	24	0·0096	0·77
E	0·7	24	0·0099	1·61
F	3·5	24	0·0025	0·08
G	1·4	24	0·0029	0·23
H	3·5	$\frac{1}{8}$	merest trace	—
I	3·5	$\frac{1}{16}$	" "	—

It appears from experiments A, B and D, that the quantity of

copper is increased by exposing the couple covered with a solution of cupric nitrate to the air, and diminished by precipitating in closed vessels. The actual amounts of copper in C, D and E being nearly the same, indicate that its presence cannot be attributed to oxygen in the copper employed; and, moreover, is a result which would follow were it caused by dissolved oxygen in the silver solutions, since it is probable they each contained about the same quantity of the gas. Experiments F and G show that the effect of saturating the solutions with carbonic anhydride prior to precipitation is to diminish the amount of copper three to four times, which doubtless is due to the partial displacement of oxygen by the more soluble gas. In experiments C to G, there existed a trace of silver in solution after the twenty-four hours. H and I, being of short duration, an excess remained; and it is noticeable that, in every case where the silver was nearly exhausted, copper was found, whereas, where there was an excess in solution, the merest trace only of copper existed in the precipitated metal.

It appears from the foregoing experiments that free oxygen is intimately connected with the presence of copper in silver precipitated by that metal; but, whether copper exists therein as cuprous oxide or as basic nitrate, would depend upon at what stage of the operation the oxygen plays its part. If the two actions, *i. e.*, decomposition of silver nitrate by copper, and cupric nitrate by oxygen, be simultaneous, basic nitrate should be found. If, however, the decomposition of cupric nitrate be not effected until the silver nitrate is so exhausted as to be incapable of action on the produced cuprous oxide, that substance should be found. One experiment made on this point with a weak solution of silver nitrate, seemed to show that basic nitrate of copper did not exist.—*London Chem. News, Sept.* 20, 1872.

ON A NEW PROCESS FOR THE ESTIMATION OF IODINE IN KELP LIQUORS, MINERAL WATERS, &c.

By E. Sonstadt.

The addition of an alkaline permanganate to a liquid containing an iodide in solution, converts the iodide into an iodate, provided sufficient free alkali, or alkaline carbonate is present to prevent liberation of iodine. This fact (which I discovered early in the present year, in the course of investigations having for their object

the effecting of improvements in the manufacture of iodate of potassium direct from the mother-liquors of kelp, instead of from iodine, as hitherto practiced), I have found very serviceable for the estimation of iodine.

Alkaline solutions of chlorides and bromides are not in the least acted upon by permanganate solution. But neither chlorides, bromides, nor any other salts that ordinarily occur with iodides, interfere with the transformation of iodide into iodate by permanganate. Even organic matter does not interfere, provided the permanganate is added in sufficient excess. The process I adopt consists simply in adding excess of permanganate of potassium to the solution of salts containing iodide until a slight permanent tint of permanganate coloration remains. The solution is first rendered alkaline, best by addition of caustic soda, to an extent adjusted to the proportion of iodide present; but always so far as to preclude any possibility of the liberation of iodine. The liquid is then filtered, and if it does not already contain a sulphate, a small proportion of a sulphate is added to it. Solution of chloride of barium in excess—but not in much excess—is then added, and the precipitate, after separation from the liquid by filtration and washing, is heated with solution of sulphate of potassium in excess. The filtered solution contains the whole of the iodine originally present in the portion taken for analysis, as iodate of potassium. The quantity of iodic acid may be estimated volumetrically by any of the usual processes; or the mixture of iodate and sulphate may be ignited at a low red heat, and the iodide of potassium remaining be estimated either volumetrically or gravimetrically.

In this process, the transformation of iodide into iodate by permanganate in alkaline solution is *complete*. The precipitation of the iodic acid by a barium salt in presence of a sulphate is *complete*. The decomposition of iodate of barium by heating with solution of sulphate of potassium in excess, is *complete*. By the word "complete," I mean within appreciable limits. That is to say, I have, in the course of many experiments specially devoted to that end, been unable with certainty to detect even a trace of iodine either in a liquid in which an iodide had been transformed into iodate as described, and precipitated, in presence of a sulphate, by chloride of barium; or in the barium precipitate, after heating with sulphate of potassium in excess, filtering, and duly washing.

The severest test that can be applied to a process of this kind, is not to use it upon weighed quantities of an iodide, but to try it upon liquids containing, for the quantity taken, imponderable quantities of an iodide or of an iodate. The experiments that have already been described on sea-water, in my paper "On the Presence of Iodate of Calcium in Sea-water," afford a good illustration. In these experiments, one part of iodate of calcium in a quarter million parts of liquid, sufficed, in such a quantity of the liquid as did not contain a ponderable quantity of iodine, to give measurable iodine reactions in the precipitate thrown down by chloride of barium. And yet, if we suppose the whole of the iodine in sea-water to exist as iodate of barium, after addition of a barium salt, the sea-water would contain only about 1 per cent. of a saturated solution of that salt. I at first supposed this very complete precipitation of iodic acid by barium salt in sea-water to be owing to some element contained in my chloride of barium, that formed an iodate much less soluble than any that had been described. I therefore took a considerable quantity of the same chloride of barium that had been used in these experiments, and precipitated it fractionally by solution of pure iodate of potassium at three times. All the precipitates had sensibly the same degree of solubility in water. Iodate of barium is remarkable, however, in this; that it dissolves with such extreme slowness in even boiling water, that it is the work of days with the aid of heat, to get a really saturated solution. The water used in these experiments had been carefully distilled off permanganate of potassium, since water not perfectly free from organic matter cannot be trusted for solubility determinations of the iodates. The results I obtained agreed nearly enough with the published determinations of the solubility of iodate of barium to convince me that the complete precipitation of iodic acid in presence of sulphuric acid by a barium salt, is due to surface attraction, between sulphate of barium formed in the liquid, and nascent iodate of barium. If we consider how many square metres of surface a single gramme of so finely divided a precipitate as sulphate of barium usually is must present, the property that this salt is supposed to enjoy above all others, of carrying down with it more soluble salts, ceases to appear inexplicable. Yet this power certainly is not exercised solely in obedience to the degree of solubility of the salt so pulled, by mechanical attraction, as it were, out of solution. A *colloid* salt and a *crystalloid* salt seem to have no pulling power upon

one another; and crystalline salts apparently are subject to such influence under some law connected with the complexity of their crystalline form. Again, two colloid salts, as the hydrates of alumina and of ferric oxide, scarcely admit of complete separation.—*London Chem. News, Oct.* 11, 1872.

NEW PROCESS FOR THE MANUFACTURE OF IODIDE OF POTASSIUM FROM THE MOTHER-LIQUORS OF KELP.*

By E. Sonstadt.

This process consists in converting the alkaline iodides, contained in the mother-liquors from kelp, into iodates; precipitating the iodic acid by a soluble barium salt; heating the precipitate with solution of sulphate of potassium, which gives iodate of potassium in solution; drying up and melting the iodate of potassium solution, and crystallizing the solution of the melted iodide of potassium thus obtained.

The conversion of iodides into iodates in the mother-liquors is effected by one of the following processes. But it is advisable, first, to partially or completely precipitate the sulphuric acid from the mother-liquor by solution of chloride of barium or other suitable barium salt, as thus silicic acid, if present, and other impurities are separated, and the precipitate afterwards obtained of iodate of barium is more manageable. The mother-liquor is then, after separation of the precipitate, melted, to destroy organic matter. The melted mass is dissolved in water, and the solution, after separation from the residue, is, if intended for treatment by any of the processes except the last undermentioned, rendered alkaline by addition of a caustic or carbonated alkali, to such extent that the liquid may contain, for each atom of an iodide in it, five atoms of a caustic alkali, or ten atoms of a carbonated alkali. The liquid thus prepared may then be treated by any of the following processes for conversion of the iodide in it into iodate.

(1). Chlorine is passed through the liquid until the whole of the iodide is transformed into iodate, but no longer.

(2). Solution of a permanganate is added until a slight permanent coloration of permanganate remains. The liquid is then separated from the manganese precipitate, which latter may be furnaced with soda, or with soda and nitre, to reform permanganate for another operation.

* Patent No. 1054, April 10, 1872.

(3). By passing an electric current through the dilute solution in the way usual in electrolysis. This process would be convenient and economical where the electricity can be obtained from electro-magnetic machines worked by water-power.

(4). In this process the purified mother-liquor is dried up with addition of an atom of an alkaline chlorate for each atom of an iodate present. The mixture is then cautiously heated below redness until the iodide is converted into iodate.

After the iodic acid is separated from the mother-liquors, the bromide remaining in solution may be converted into bromate by either the processes (1) or (4), and bromide of potassium, obtained by the same methods as used for obtaining iodide of potassium. Processes (2) and (3) are not applicable to the formation of bromate.—*Chemical News, Oct.* 18, 1872.

QUINOA.

(*Chenopodium Quinoa.*)

By M. C. Cooke, M. A.

It is not long since that the seeds of this plant were procured from Peru, and sent to India in order to secure its introduction as a food plant into the Himalayan region. It is in Peru and Chili that the plant is chiefly cultivated, although Humboldt remarks that in Mexico it ranks in utility with the potato, maize and wheat. Meyen says that for those countries in which it is grown, it is, next to the potato, the best gift which nature has bestowed on man. Over all the plateau of Southern Peru, above the height at which rye and barley still ripen, the quinoa is the principal object of agriculture, and on the plateau of Chuguito are vast fields quite covered with this plant, which, however, do not give the landscape the charm of our own beautiful corn-fields. On good soil this plant attains the height of three or four feet, and bears an immense quantity of seeds, which, unfortunately, for a long time feed an innumerable flock of birds, like sparrows, for this plant has the disadvantage that all its seeds do not ripen at the same time. The quinoa is still cultivated in Southern Chili, but before the introduction of cereals it was doubtless a more general food. The variety which, according to Molina, is called Daline by the Indians of Chili, and which has ash-grey leaves

and white seeds, is the one commonly cultivated around the lake of Titicaca.

In 1834 it was first known in England, and in 1838 was figured and described in Curtis's "Botanical Magazine."

The *Chenopodium Quinoa*, Willd., is a herbaceous annual, with a stout erect angular stem of from three to four, or even five feet in height in a good soil; it branches considerably, with short erect branches. The lower leaves are as large as the human hand, and of somewhat triangular shape on long footstalks, and of a pale rather glaucous hue. Small green inconspicuous flowers, and afterwards the fruit, are produced on numerous panicles, both axillary and terminal. The whole habit of the plant closely resembles the goosefoot and spinach. The peculiar hue is caused by the myriads of glandular hairs, with subglobose iridescent heads, with which the plant is studded, and which are exceedingly beautiful under the microscope.

It is said that any light argillaceous soil is suitable for its cultivation. The ground appropriated to it is ploughed or well broken up, and the seeds sown in furrows a yard apart. Or the seeds may be sown in beds and afterwards transplanted. The seed time is in the spring, and the harvest about seven months after.

When quite ripe, the seeds, which are about the size of white mustard seed, but flatter, are easily reduced to a whitish meal. It is not tenacious when mixed with water, as is the case with wheaten flour, but more resembles oatmeal, and is therefore scarcely fit for making bread.

The starch granules are exceedingly minute, and constitute nearly 40 per cent. of the grain in its natural state. According to analysis, it contains upwards of five per cent. of sugar, seven and a half per cent. of casein, and upwards of eleven per cent. of albumen, and other protein compounds. This large amount of protein is unusual in farinaceous seeds, and indicates considerable nutritive value.

The varieties cultivated in Arequipa are called "Colorada," "Amarilla," "Blanca," "Real," "Ccosccossa," "Uchacachi," "Ccancolla," "Ccoyto," and the bitter seeded variety "Amarga."

In Lima two methods are employed in the preparation of quinoa. In one case it is boiled in water like oatmeal, and a kind of gruel is the result, in which the seeds float, or at least the remains of them; this is seasoned with pimento. The other method is a favorite with

the ladies of Lima. The grains are slightly toasted like coffee, and boiled in water, yielding a brown-colored soup, which is seasoned with spices, and is of a taste so peculiar that few strangers like it.

The real quinoa "amarga" is chiefly cultivated in small quantities in gardens. The seeds bruised and boiled in water are said to form a bitter decoction, which, mixed with sugar, is employed as a vulnerary for sores and bruises. Cataplasms are also made of it. The bitter quality is said to be removed by soaking in water. From other sources we learn that this variety is employed internally as an emetic, and also as a substitute for quinine in cases of ague, and externally as a poultice for cancer, gangrene, contusions, etc.

The leaves of the quinoa are commonly eaten as a vegetable, and much resemble those of other species of *Chenopodium*, as, for instance, the *Chenopodium bonus-Henricus*, and its ally the spinach.

It still seems to be uncertain what is the medicinal value of the red quinoa, and to what its bitterness is to be attributed. Whatever it may be, the bitterness seems to be confined to the husk or testa of the seed, and may be removed by digesting the seed in a dilute solution of carbonate of soda, and afterwards washing. It was this seed which was analyzed by Dr. Voelcker, with the following results:

	Natural state.	Calculated dry.
Water	10·01	//
Starch	38·72	46·10
Sugar and Extractive	5·12	6·10
Gum	3·94	4·60
Oil	4·81	5·74
Casein and a little soluble albumen	7·47	8·91
Insoluble albumen and other protein compounds	11·71	13·96
Vegetable fibre	7·99	9·53
Inorganic matters	4·23	5 06
	100·00	100·00

A somewhat similar plant, or perhaps two or three species, has long been cultivated in India for its farinaceous seeds, which are very much smaller than those of the Quinoa. Under the names of *Amarantus gangeticus*, *Amarantus frumentaceus* and *Amarantus anardana*, plants are referred to by different authorities as yielding seeds resembling small millet, which are employed in a similar manner and for a like purpose.—*Pharm. Journ., Lond., Oct.* 12, 1872.

THE PRESENCE OF AN ORGANIC ALKALI IN BOLDO.

By E. Bourgoin and C. Verne.

The boldo is a tree indigenous to Chili, which sometimes attains the height of from five to six metres, and belongs to the order *Monimiaceæ*. It was first attributed to a laurel, the *Laurus dioica* of Dombey. It is the *Boldoa fragrans* of Jussieu, the *Ruizia fragrans* of Ruiz and Pavon, and the *Peumus fragrans* of Persoz. Baillon has recently described it under the name of *Peumus boldus*. The leaves have a strong piquant camphorate savor. They contain an essential oil and an organic alkali, to which the authors propose to give the name of boldina. The following method was adopted by them in their researches.

The powdered leaves were exhausted with washed ether in a displacement apparatus, by which method a well-saturated aromatic tincture was obtained. When this was submitted to distillation, the thermometer, after the ether had passed over, remained stationary at 185°, and a certain quantity of an essential oil, recalling the odor of the plant, was collected. The thermometer then rose gradually to about 230°, when it again remained stationary for some time, and afterwards mounted to about 300°. These facts showed that the ether had taken up some complex volatile products; in other words, that the essential oil of boldo is a mixture of several bodies, agreeing with what has been observed in regard to most aromatic plants.

When the powder would yield nothing more to ether, it was exhausted with 90° alcohol, containing tartaric acid in solution. Upon evaporation, a syrupy acid residue was obtained, which was agitated with washed ether, in order to remove a brown odorous matter, soluble in ether, alcohol and acids. After saturation with bicarbonate of potash it was agitated afresh with ether, which then took up a matter presenting all the characteristic reactions of an alkaloid; this was impure boldina.

In order to purify this product, it was dissolved in water slightly acidulated with acetic acid, and then precipitated by ammonia added in slight excess. This alkaloid existed in small quantity in the leaves operated upon—about one part in one thousand,—and moreover it was difficult to obtain it pure, since the aromatic matter previously mentioned, which was soluble in acids, clung to it with great persistence.

The above process being one rather of research than of extraction, af-

ter various experiments the following was adopted:—The leaves, coarsely powdered, were exhausted by infusion in water acidulated by 30 grs. of acetic acid per kilogram of product. The liquor was filtered and evaporated in a water-bath to the consistence of thick honey. It was then acid, and contained, beside the alkaloid, a little aromatic matter and a large quantity of acetate of lime. When the acetic acid was replaced by citric acid, alcohol caused a voluminous precipitate of citrate of lime; with sulphuric acid it formed an abundant deposit of sulphate of lime. These facts indicate the presence in the leaves in large proportion of a lime salt. The operation was terminated by washing with ether, saturating with the alkaline bicarbonate, and taking up the alkaloid with ether. Upon evaporation a residue was left which was dissolved in diluted acetic acid and then precipitated by ammonia. It was usually necessary to repeat this process to rid the alkaloid of a small quantity of yellow matter.

Boldina is very slightly soluble in water, to which, however, it communicates an alkaline reaction and a perceptibly bitter taste. It is lizable benzin. From solution in acids it is precipitated by ammonia soluble in alcohol, ether, chloroform, caustic alkalies, and in crystal- and the double iodide of mercury and potassium, and gives with solution of iodine a chestnut-brown precipitate. Concentrated nitric acid immediately colors it red and it assumes the same coloration in the cold with sulphuric acid.—*Pharm. Journ.* (*London*), *Oct.* 26, 1872, *from Journal de Pharmacie et de Chimie*, [4] xvi, 191.

Varieties.

To Cut and Bore India-Rubber Corks.—W. F. Donkin.—Dip the knife or cork-borer in solution of caustic potash or soda. The strength is of very little consequence, but it should not be weaker than the ordinary reagent solution. Alcohol is generally recommended, and it works well until it evaporates, which is generally long before the cork is cut or bored through, and more has to be applied; water acts just as well as alcohol, and lasts longer. When, however, a tolerably sharp knife is moistened with soda-lye, it goes through India-rubber quite as easily as through common cork; and the same may be said of a cork-borer, of whatever size. I have frequently bored inch holes in large caoutchouc stoppers, perfectly smooth and cylindrical, by this method. In order to finish the hole without the usual contraction of its diameter, the stopper should be held firmly against a flat surface of common cork till the borer passes into the latter.—*Chem. News, Lond., Aug.* 30, 1872.

Liquid Glue Prepared from Saccharate of Lime.—A solution of one part of loaf sugar in three parts of water, when spread on paper, imparts to it neither gloss nor strength, for the size does not adhere to the fingers when moistened. If, however, we add to the sugar the fourth part of its weight of slaked lime and warm it to 145° to 165° F., then let it macerate some days, shaking it frequently, we shall find the greater part of the lime dissolved. The solution decanted from the lime sediment is then found to have the properties of mucilage, and a coat of it possesses gloss and firmness.

If we soak three parts of glue broken in small pieces in 12 to 15 parts of this saccharate of lime, then on warming it the glue dissolves rapidly, and remains liquid when cold without losing its strength, as glue does when treated with acid. Glue of any desirable consistency may be prepared by varying the amount of saccharite of lime added. The thicker glue keeps its muddy color, the thin becomes clear on standing.

Gelatin dissolves in this solution of lime and sugar without previous soaking; even old gelatin which has become insoluble in hot water is soluble in this compound. This glue has great adhesiveness, and admits of very many uses. It cannot, of course, be used on colors that are injured by the lime, as, for example, chrome yellow, Paris blue, zinc green, Behringer's green and carmine. Ponceau made from carbolic acid is changed into a beautiful carmine color. When warming the glue to dissolve it, a strong smell of glue is given off, but this is destroyed by a few drops of oil of lavender. A small admixture of 2 to 3 per cent. of glycerin is also an advantage. Carbolic acid acts upon the lime when the glue is exposed a long time to the air, producing little white specks, without, however, affecting its adhesive and preservative power.—*Journ. Appl. Chem., Nov.*, 1872.

A Cement to stop cracks in glass vessels to resist moisture and heat. Dissolve caseine in cold saturated solution of borax, and with this solution paste strips of hog's or bullock's bladder (softened in water) on the cracks of glass, and dry at a gentle heat; if the vessel is to be heated, coat the bladder on the outside, before it has become quite dry, with a paste of a rather concentrated solution of silicate of soda and quick-lime or plaster-of-Paris.—*Sci. Amer., Oct.* 19, 1872.

On Beavers and Beaver Dams in Mississippi.—By Mr. John Shelton.—From a letter to one of the editors, dated Raymond, Hinds Co., Mississippi, Sept. 12. —I have resided in this county since 1837, now for nearly thirty-five years. When I came here I was young and somewhat given to hunting. At the outset, to my inquiries of other hunters, whether there were beavers here, it was replied, that there were a few, but no one could then tell me where there was one of their dams in this neighborhood.

And yet by the year 1850, their dams were to be found in nearly all the streams in the county that were not so small as to become dry during our long summers, or too large for the operations of the beaver. They continued to increase, greatly to the injury of most of our low land, and to the annoyance

of its cultivators. In 1858 or 1859, a professional trapper from Wisconsin, if I am not mistaken, caught seventy five or eighty beavers in this county in less than a month's time.

They are yet increasing in this county, as I have no doubt they are in all the counties of central Mississippi and Alabama, and perhaps entirely throughout both States. I have no doubt that in Hinds county they are more than half as numerous as the population. I now write in the Court House of the county, and they can be found in sight of it, and at a less distance than one mile.—*Am Jour. Sci. and Arts, Nov.*, 1872.

Opium Smoking.—As a large portion of Middle China is devoted to the cultivation of the poppy, and already merchants are complaining that their profits are diminished by the rapidly increasing product of the Chinese drug, the following gleanings from a correspondent of an exchange journal at Foochow may interest some of our readers:

"Intelligent Chinese inform me that the number addicted to opium-smoking is rapidly increasing. All classes are alike guilty of the vice, and in some cases entire families are ruined, both physically and financially, by the use of the drug.

"This is an aqueous extract made by first dissolving the crude opium in water and steaming, then carefully boiling. The impurities, such as fragments of leaves, sticks, &c., are skimmed off, and this is continued until it has a consistency and appearance resembling tar. The prepared opium represents about twice its own weight of crude opium drug. It is retailed to the smokers, who carry it in small boxes made of buffalo's horns.

"The implements used in smoking are the pipe, a small lamp and a flattened wire. The pipe is made of some heavy wood, frequently of ebony, mounted with silver trimmings. They are from one to one and a half feet in length, and from one to one and a half inches in diameter. The bowl of the pipe is made of earthenware, and has only a small aperture to receive the opium.

"The smoker reclines on his side, and, if wealthy, he has a servant to hold his pipe, hand him his opium, and fan him. A quantity of opium about the size of a pea is collected on the end of a wire, placed in the bowl of the pipe, and ignited by being brought into contact with the flame of the lamp. The smoker inhales it in two or three whiffs, and it is retained in the lungs as long as possible.

"The amount consumed by the habitual smoker is quite surprising. A quarter ounce is daily used by hundreds, and in some cases it is believed to reach an ounce."—*Med. Press, Lond., Oct.* 2, 1872.

Boldo.—This is the name of a new remedy which has been recently introduced into Europe. It is imported from Chili, where it is distilled from the leaves of a tree of the genus *Monimiaceæ*. Its reputation appears to rest upon a pretty slender basis, and not upon the results of any trustworthy experiments. Thus far it has been administered empirically for the more frequent affections of the liver. As in the case of *cundurango*, its use is most strongly recommended by charlatans, pecuniarily interested in its success, and, like that drug, its popularity will probably be of very short duration.—*Boston Med. and Surg. Journ., Oct.* 3, 1872.

The Fever Tree.—Dr. Pedro L. N. Chernovis, of Bahia, in a late number of the "Gazeta Medica da Bahia," gives a very interesting account of the history, uses, propagation, medical and miscellaneous properties of the *Eucalyptus globulus*, an immense tree introduced into various provinces of Brazil from Australia, and called, as in Spain, *arvore da febre*, from its "marvellous results in the treatment of intermittent fevers." The tree is colossal, sometimes attaining a height of 300 feet and a diameter of 30 feet. All parts are aromatic, less so in the trunk and bark, more so in the small roots, flowers and leaves. It is a comparatively new medicine of much promise, and is given internally for intermittent fever, in doses of from one to four drachms of the powdered leaves—twice during the intermissions—or in infusion (two drachms in four ounces of boiling water), morning and evening. Aqueous and alcoholic extracts, in doses of from two to eight grains, are also used for the same disease. One or two drops of its essential oil, on sugar, in pill or capsule, are advised in bronchial and pulmonary affections, laryngitis and catarrhal aphonia.—*Boston Med. and Surg. Journ., Oct.* 24, 1872.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held Tuesday afternoon, Nov. 19th, 1872, William B. Webb in the chair.

Minutes of last meeting were read and approved.

Mr. Remington made some remarks on ceresin, a new substitute for white wax. It is obtained from ozokerite, or fossil wax, found in Gallicia, Ozokerite is distilled between 250° and 300° centigrade, to separate liquid oils; the residue is treated with Nordhausen sulphuric acid to separate impurities. It is then refined by a simple process, and sent into commerce. The commercial article is used principally in the manufacture of candles, as a substitute for wax or paraffin, differing from paraffin by its greater opacity, and not being unctuous to the touch, and its behavior when treated with various solvents, —ether, boiling alcohol, turpentine, benzin. Chloroform dissolves both paraffin and ceresin to greater or less extent, and each is deposited from warm solution in a different manner, paraffin being unchanged on cooling on the sides of the vessel, whilst ceresin is a heavy flocculent precipitate. Ceresin costs 90 florins per 50 kilos in Bremen, equal to about $46 gold laid down here. It may be used to adulterate wax, or as a substitute, resembling it quite closely in fracture, but being a little white in color.

Prof. Maisch presented to the College several pamphlets on pharmaceutical subjects, donated by Dr. Theod. Peckolt, and styled Analyses de Materia Medica Brasileira dos productos que Ferao premiados nus Exposiçoes nacionals e na exposao universal de Paris em 1867. Explicaçôes sobre a Collecção de Pharmacognosia e Chimica Organica, etc. Enviada à Exposição Nacional. Historia das Plantas Alimentaras e de gozo Do Brasil contendo generalidades sobrea agricultura Brasileira, a cultura, uso e composição chimica de cada uma dellas. Also, a treatise on "Guaranâ oder Uranâ." Also, on "Lophophytum

mirabile Schott. et Endl. Also, Carpotroche Brasiliensis Endl. The meeting desired the expression of thanks for these additions to the library of the College.

Prof. Maisch also presented, from Mr. P. W. Bedford, a map locating the various articles of "Materia Medica." The map, though generally correct, has in several instances mistaken the locality of some of our American plants. The work is a very valuable one to the student of materia medica and pharmacy, and supplies a want long felt.

Mr. Remington presented a modified form of crystallized permanganate of potassa, in which the ordinary needle-like character was entirely wanting, the crystals merely showing the pyramidal summit common to the usual salt. This effect was doubtless due to interference from other salts of greater solubility present in the solution from which the permanganate was crystallized. The appearance of the modified form of crystals was such as to lead to the supposition that an adulteration was attempted. The article was imported from Germany and offered for sale in this market.

Prof. Maisch introduced the subject of musk, and exhibited several very interesting samples of the pod, obtained from Mr. Cramer, who imported the pods. Among the collection were some curiously shaped pods, which had been pressed in a conical shape in drying or during transportation, also some with exceedingly thick skins.

From the records kept by Messrs. Cramer and Small, the following has been furnished to show the yield of musk:

Number of Bags.	Weight of Bags.			Weight of Musk.		
2	1 troyoz.	3 dr.	— gr.	– troyoz.	5 dr.	— gr.
3	2	3	15	1	2	—
6	4	3	10	2	2	10
4	4	1	—	1	1	30
12	10	–	—	3	2	40
1	—	5	40	–	3	—
1	—	6	23	–	3	23
29	23	6	28	9	3	43
Average for 1 bag,	394 grains			156¾ grains.		

Prof. Maisch also exhibited a mass of cubical crystals, which were found on the coast of Patagonia, embedded in guano. Analyzed at the College laboratory, by Mr. N. J. Bayard, they were found to be chloride of ammonium.

Prof. Maisch exhibited the leaves of *Eucalyptus globulus*, recently highly recommended in Europe in fevers; also, a specimen of the volatile oil. The tree is indigenous to Australia, and is of rapid growth, attaining the height of 300 feet. In Europe this tree is used as an ornamental tree for shade, and was supposed to have a good effect on the salubrity of the climate.

Prof. Maisch, on behalf of E. H. Heinitsh, of South Carolina, exhibited a sample of South Carolina opium. It is considered by those engaged in producing opium in this State that the plants can be grown with considerable profit. The sample sent has not yet been analyzed; it was gathered when the plant was green and in its luxuriance of growth.

Some discussion was entered into upon the subject of domestic opium, and the different makes were freely discussed, with the resulting opinion that our warmer climates might produce opium, if grown properly, equal in quality to the article from the usual source.

After the usual friendly greetings, the meeting adjourned.

CLEMMONS PARRISH, *Registrar.*

Pharmaceutical Colleges and Associations.

CINCINNATI COLLEGE OF PHARMACY.—We are pleased to learn that this College has entered upon its second course of instruction with a class of about fifty students.

The members of the College met October 27th to greet Professor Wayne, who had returned home from a tour to Europe, and gave an account of the state of pharmacy in London, Paris, Geneva and Berlin. The company afterwards sat down to a sumptuous supper, and with many a brilliant sally and quick repartee, and toast and song, the evening sped swiftly away.

At the monthly meeting of the College fifty elegant specimens of materia medica were presented on behalf of Messrs. Cheney, Myrick, Hobbs & Co., of Boston; also specimens of American antimony, Kieserite, curare, amygdaloid benzoin, button lac, ambergris, a Chinese opium pipe, a fine photograph of the statue of Esculapius, and other rare articles by Professor Wayne.

Professor Judge also presented to the College a number of valuable books to form a nucleus for a College Library, and at his motion a Committee of three was appointed on Library, consisting of Messrs. Judge, Fratz and Ayers. The Secretary of the College, Mr. J. M. Ayers, in a letter to the Editor, writes:

"If any of our friends have books they may feel disposed to donate to our Library, they may send them per express, at our expense, addressed to 'Library Committee Cincinnati College of Pharmacy, care of F. E. Suire & Co., Cincinnati, O.'

"Our College is already counting on the pleasures of the excursion to Richmond next September, and I assure you we will be represented by a full delegation at the meeting of the American Pharmaceutical Association at that time."

CHICAGO COLLEGE OF PHARMACY.—The course of instruction commenced on the second of October, the introductory address being delivered by Professor Bartlett.

The apparatus, specimens and books collected for this College in England and France have arrived, and form very valuable collections.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the Pharmaceutical meeting held November 6th, Mr. A. F. Haselden occupied the Chair. Some valuable donations to the library were received.

Mr. Hanbury exhibited some leaves of *Rheum officinale*, Baillon, recently described as the source of true Chinese rhubarb.*

* See page 546 of this Journal.

Messrs. Hopkin & Williams exhibited fine specimens of monobromo-camphor, made by the process suggested by Professor Maisch, and of carbazotate of ammonia, which is intensely bitter, and was lately recommended as a substitute for quinia. Mr. Williams, from the results made many years back upon a corresponding salt. the carbazotate (picrate) of potassa, thought it somewhat doubtful if it would be found to be of great value; he also pointed out that care should be taken in manipulating it, as, under certain circumstances, it was violently explosive.

Mr. Bland called attention to a specimen of adulterated cochineal, loaded with about 20 per cent. of sulphate of barium, an adulteration which was common enough years ago.

Mr. Hustwick, of Liverpool, presented asthma pastilles made from the following formula:

Asthma Pastilles.

Pasteboard, broken down with hot water, ...	4 oz.
Nitrate of potassa, ...	2 oz.
Belladonna, stramonium, digitalis, lobelia, powdered, each, .	20 grains.
Myrrh and olibanum, of each, ...	2½ drachms.

Incorporate all these with the paste, and divide the mass into pastilles; burn them in a saucer in a well shut room.

A paper, by Mr. Haselden, on tincture of orange peel, gave rise to some discussion, in which it was generally admitted that it should be prepared from the fresh or recently dried peel, carefully removing the white portion, but that, on dilution with water, it would become more milky than when prepared from the dried peel.

Professor Redwood read a paper on the proposed universal pharmacopœia, and Dr. Thudichum, after giving a history of the various attempts at a universal pharmacopœia since 1697, explained that the proposal of publishing a *European pharmacopœia* originated with Professor Phœbus, of Giessen, in 1867–69. It appears that Messrs. Cantini, of Naples, Flückiger, of Berne, Planchon, of Paris, Schneider, of Vienna, Thudichum, of London, Trapp, of St. Petersburg, and several others, who have constituted themselves into a "Pharmaconomic Society," are actively engaged on this work. The value of the remedies will be indicated by the use of different types; the important medicines by large type, those of subordinate value, but still useful, by smaller, and those which may be considered as mere trash, by still smaller type.

The Pharmaceutical Society of Antwerp is now engaged in the preliminary revision of the Belgian pharmacopœia, and meets for this purpose every two weeks.

The same Society has prepared a memorial "On the necessity of reorganizing the pharmaceutical corps of the army upon an equitable base," and has transmitted the same to the Secretary of War and to Mr. Decaisne, Inspector General of the sanitary service of the army.

The Austrian Apothecaries' Society met at Innspruck, September 9th and 10th. The transactions were mainly of local interest. The next meeting will be held the coming year in Vienna.

Editorial Department.

Pharmaceutical Utility of Botanical Gardens.—Under this caption we find in a recent number of the *Pharmaceutical Journal and Transactions* an interesting extract from a lecture delivered by Dr. von Mueller, at Melbourne, Australia, and we regret that our space does not admit to extract more copiously from the address which, we observe, is published in full in the *Journal of Applied Science*, August and September, under the title of "The Objects of a Botanic Garden in Relation to Industries."

There are but few botanical gardens in this country, while not a single city, boasting of a "park," ought to be without one. In Philadelphia and Baltimore, and probably also in some other cities, the subject was brought to the notice of the proper authorities, but we believe without any other result, thus far, except promises for the future, which, however, we hope will become realities before long. We copy as follows:

"Botanic gardens and their uses is a subject that has been taken up and treated of very fully in a lecture by Dr. Von Mueller, of Melbourne The great utility of a well managed botanic garden in its various phases is pointed out, and he advocates that, in a pharmaceutical point of view, a botanic garden is not only an indispensable element in the education of the student, but is a constant and ready help through life. Dr. Mueller says:—'For toxicological experiments in a botanic garden the various poison plants become of importance, irrespective of the guardianship, which the display of these plants in a living state so instructively exercises. Investigations of this kind require lengthened attention, the separation, analyses, and identification of organic poisons being surrounded with far more difficulty than the examination of metallic or other inorganic substances. Besides, the development or intensity of the deleterious principle depends often on local causes, which are not always within ready range of observation, or perhaps even involved in mystery, such as physiology and chemistry have hitherto striven in vain to clear away. The so-called Cape weed (*Cryptostemma calendulacea*), for the presence of which I am not responsible, as it had already irrepressibly invaded some parts of Australia as early as 1833, was recently subjected in my laboratory to examination, with a view of ascertaining whether any chemically separable active principle might produce the violent purging, terminating in acute, and often fatal dysentery, to which flocks occasionally become subject; but the investigation gave negative results. The deleterious effect arises, therefore, either merely from a mechanical irritation and distension when sheep have gorged themselves with this weed, or it may be traceable to a locally developed poison, which in ordinary circumstances does not exist. The latter was ascertained to be the case by my own experiments as far as *Swainsona Greyana*, *S. lessertiæfolia*, *Lotus australis*, *Gastrolobium bilobum*, and, perhaps, *Stypandra glauca*, are concerned. The two former cause in some localities cerebral affections in horses and other pastural animals, terminating in death; but the cultivated plants were found harmless. *Gastrolobium*, with some species of *Oxylobium* and *Isotropis*, the bane of the heath pastures of West Australia has hitherto baffled all efforts to detect an antidote, but one of the most dreaded species, *Gastrolobium bilobum*, proved here in cultivation inert. Desert specimens of *Lotus australis* produced in my local trials deadly effects on sheep, while our garden plant, or the fresh herb from the sand shores of Port Phillip, showed themselves innocuous. *Stypandra glauca* is reported to produce complete blindness of sheep in some districts of West Australia, the eyes, it is said, assuming a blue

tinge throughout. Unless this grass lily has been confused with an alien and externally similar weed—namely, *Agrostocrinum stypandroides*—we have again a plant which, with capriciousness, has hitherto baffled our toxicologic experiments *Anguillaria* and *Burchardia*, which early in the spring sprinkle their pretty blossoms so universally over the pastures of the whole of extra tropic Australia, produce, so I have ascertained, innocuous bulbs, although belonging to a tribe of plants which includes the dreadfully deleterious veratrums and sabadilla.'"

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Ueber Molekülverbindungen nach festen Verhältnissen. Von Dr. Alexander Naumann, a. o. Professor an der Universität Giessen. Heidelberg: Carl Winter's Universitäts—Buchhandlung, 1872. 8vo. pp. 64.

On molecular componnds in constant proportions.

This memoir, which was published several months ago, but has only lately reached us, is an argument in favor of the unchangeable quantivalence of the elementary atoms as ascertained from compounds which may be obtained in the gaseous form without decomposition. In this theory the author finds the surest basis for explaining chemical compositions and processes, although he acknowledges that certain facts still require careful investigations before they can be satisfactorily explained, a difficulty which is readily overcome by the theory of changeable quantivalence. The deductions are drawn from a number of physico-chemical observations, mostly made within the last decade. The essay is a valuable contribution towards solving the questions of the constancy of the quantivalence of atoms and of the compounds of molecules; it is written in a clear style, and the modern literature has received due attention.

Jahresbericht über die Fortschritte der Pharmacognosie Pharmacie und Toxicologie, herausgegeben von Med.—Rath Dr. Wiggers Prof. in Göttingen, und Dr. A. Husemann, Prof. in Chur. Neue Folge. 6. Jahrgang. 1871. Gottingen: Vandenhoeck & Ruprecht's Verlag. 1872. pp. 591.

Annual report on the Progress of Pharmacognosy, Pharmacy and Toxicology, for 1871.

This annual is so well known and has sustained its well merited reputation to such an extent that we need merely point to what we have said about several of the former volumes; the arrangement remains the same as heretofore, and the extracts of the numerous papers published during 1871 have been made with the usual care and completeness.

Handbook of Compound Medicines, or the Prescriber's and Dispenser's Vade-Mecum. By Arnold J. Cooley. Philadelphia: J. B. Lippincott & Co. 1873. 12mo. pp. 219.

This little work is divided into two parts, part I containing formulas for pills, boluses, globules grains and granules, and part II such for mixtures, each part being introduced with the same preface, dated, respectively, London, October 1st, 1866, and May 1st, 1867. It is evident from this that the scope of the

work is limited, since it does not treat of powders, ointments, liniments, suppositories and other important medicinal preparations.

It is a good compendium of prescriptions which were in use six or seven years ago at different hospitals in Great Britain and mostly by British physicians; but it has not been brought up to the present time, and contains few formulas of American origin beyond those selected from the United States Pharmacopœia of 1860. Chloral hydrate, carbolic acid and other remedies of less importance introduced within the last few years are not alluded to; quinia pills, conveniently made with sulphuric acid, are not mentioned, and the references to the British Pharmacopœia mean the edition of 1864, that of 1867 being entirely ignored. The directions on pages 91 and 200, to employ in dispensing only so-called Russian or Turkey rhubarb, are antiquated, that variety having long since disappeared from the market.

The omission of a thorough revision of the work, which would have also necessitated the introduction of more American formulas, detracts much from its value.

Handbook of Perfumes, Cosmetics and other Toilet Articles, including Instructions and Cautions respecting their selection and use, with a comprehensive collection of formulæ and directions for their preparation. By Arnold J. Cooley. Philadelphia: J. B. Lippincott & Co. 1873. 12mo. pp 416.

The volume before us comprises chapters xvii, xviii and xix, and the appendix of the larger work, "The Toilet and Cosmetic Arts," and contains formulas and pretty minute instructions, which are of particular value to the manufacturer. It treats of cosmetics for the skin, the hair and the teeth, and of so-called waters (eaux), bouquets, extracts, essences, hair oils, pomatums, soaps and other perfumery articles; it likewise gives a number of formulas for the cure of chilbains, corns, warts, &c. The formulas appear to have been selected with a great deal of care, and the book will, therefore, be valuable to all those who make such preparations on a small scale, or manufacture them extensively. It is handsomely printed in clear types upon tinted paper.

Small-Pox: the predisposing conditions and their preventives. With a scientific exposition of vaccination. By Dr. Carl Both. Second edition. Boston: Alexander Moore. 1872. 12mo. pp. 82. Price bound, 75 cents.

This essay is written in a popular style, and is based on the theory "that the *predisposition* to small-pox consists in an undue proportion of albuminous matter to the blood-salts, and that as the result, an otherwise inoffensive nervous irritation becomes sufficient to cause the blood to part with this superfluous albumen, which, in this case, is thrown into the skin, and constitutes that condition which is commonly called small-pox;" and it is further maintained, "that a person who does not exhibit this superabundance of albuminous matter in the blood is not liable to small-pox under any circumstances of exposure or contact with patients suffering from this disorder." Among the examples cited by the author is the fearful mortality from this cause in the French army during the late Franco-German war (see page 519 of our last number), while the Ger-

man army was comparatively exempt from this disease. The author attributes this to the pea-sausages with which the Germans were provided, and which contained not only salt, but all the necessary ingredients the human body requires for health and vigor,—and to the scarcity of salt particularly in the besieged cities. On the other hand, it must be remembered that the advocates of vaccination account for the above mentioned facts by the compulsory revaccination in the German, and the want of this measure in the French army.

The author regards the facts cited by him not as conclusive proofs (except for himself), but advises that his views be tested by others, since no harm can come from them, and the experiments cost nothing.

The appendix contains an essay against vaccination; vaccine matter, except when taken from the heifer, being regarded by the author to be essentially pus. It is strange that he avers, on page 56, that statistics are very unreliable, while he attempts to fortify his own position by statistical data. The statement, on page 52, that "saltpetre is a nitrogenous combination, and consequently allied to albumen instead of its opposite, as salt," is entirely incorrect, as the two substances have no analogy, either in chemical composition or in their effects upon organisms.

The subject of the treatise is an important one, but it appears to us that if the author's views were correct, small-pox should be, if not epidemic, at least of continual occurrence in most communities, since the excessive or insufficient use of salt by individuals, or certain classes of the population, does, probably, not vary to any great extent. The theories, however, seem to deserve the careful consideration of the medical profession, and an unbiased scrutiny by physiological experiments.

Constitution, By-laws, Articles of Incorporation and Proceedings of the third annual meeting of the California Pharmaceutical Society, held at San Francisco, October, 1871. *Also the Roll of Members.* San Francisco: Printed by Joseph Winterburn & Co. 1872. 8vo. 36 pages.

We have already reported on the Proceedings of the third meeting of this Society, on page 520 of the last and on page 335 of the present volume, and have given, on page 289 of our May number, an abstract of the provisions of the San Francisco pharmaceutical law, which is printed in the appendix of the above pamphlet.

Transactions of the Minnesota State Medical Society. Minneapolis: Johnson & Smith, printers. 1872. 8vo. pp. 120.

It contains the transactions of this Society at its third and fourth annual meetings, held in June, 1871, and February, 1872.

Twenty-ninth annual Report of the Managers of the State Lunatic Society, for the year 1871. *Transmitted to the Legislature March* 6, 1872. Albany: The Argus Company, printers. 1872. 8vo. pp. 87.

The pamphlet contains the reports of the Managers, the Treasurer and the Superintendent, the latter containing some valuable observations and suggestions.

The Physician's Visiting List for 1873. *Twenty-second year of its publication.* Philadelphia: Lindsay & Blakiston.

Besides an almanac and a table of signs, it contains Marshall Hall's ready method in asphyxia; a short account of the antidotes to various poisons, and a table for calculating the period of utero-gestation. This is followed by the memorandum book, conveniently arranged for an average of 25 (or a larger number of) patients per week.

Half Hour Recreations in Popular Science. Dana Estes, Editor. No. 5. Boston: Esten & Lauriat.

The number before us contains the following interesting papers:

Nebulæ, comets, meteoric showers and the revelations of the spectroscope regarding them, by Professor H. Schellen; and coral and coral islands, by Professor J. D. Dana. If the selections for the future numbers are made as judiciously as has been done for the one before us, these "Recreations" will constitute a valuable publication for every intelligent reader.

The Half Hour Recreations are published in monthly parts, at $2.50 per annum, or 25 cents per number, and are handsomely printed upon tinted paper.

A Sketch Map of the Nile Sources and Lake Region of Central Africa; showing Dr. Livingstone's recent discoveries and Mr. Stanley's route. 1872. Philadelphia: T. Ellwood Zell. Price, 25 cents.

The publication of this map at the present time is very opportune, since Mr. Stanley's recent African journey has furnished an account of the most important geographical discoveries in Central Africa, made by Dr. Livingstone during the last six years.

OBITUARY.

Prof. John F. Frazer, aged 63 years, died suddenly of heart disease on the 12th of October, at the new building of the University of Pennsylvania, in which institution he had occupied the chair of Natural History and Chemistry for about thirty years. He was a member of the American Philosophical Society and of the Franklin Institute, and for a long time Editor of the Journal of the latter. He was a man of extensive learning and varied attainments.

Correction.—Mr. Jas. T. King requests us to correct an error in his paper published in the September number. On page 388, line 23, "five and three-tenths grains" should read *twenty-five and three-tenths grains.*

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